AJAR - Labor Hours Modeling Transparency and Accountability in Contract Negotiations

2024 PEPS Conference

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Key Contributors

- Cliff Hallford – PEPS Division

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- ACEC Texas

Business in Texas

Become Administratively Qualified

Texas Department of Transportation > Business > Consultants
> Architectural, Engineering and Surveying Consultants > Getting Started

Administrative qualification is a process TxDOT uses to verify that your firm has an indirect cost rate that meets TxDOT requirements.

Become Administratively Qualified

You may demonstrate administrative qualification by an audit or by self-certification of its incorporated entity or business segment. TxDOT requires the use of direct labor cost as the allocation base for allocating indirect costs.

- Paycheck Protection Program (PPP) - Updated
- Certified Public Accountant (CPA) Audit
- Self-Certification
- Safe Harbor Rate (applies to Texas firms only)
- Overhead Review Process for Administrative Qualification

Submit Qualification Documentation

After an audit is complete, you must submit qualification documentation for review.

- Submittal and Review Process

Requirements for Processes

The administrative qualification requirements for the four selection processes — Comprehensive, Federal, Streamlined, and Accelerated — are addressed in the Texas Administrative Code, Title 43, Subchapter C, in Sections 9.34(b), 9.35(b), 9.36(b), and 9.37(b), respectively. The requirements are further explained below:

- Comprehensive, Streamlined and Accelerated Processes
- Federal Process

When it comes to business in Texas, PEPS is a leader in:

1) Innovation

2) Fair and Equitable Practices

3) Transparency and Trust

How TxDOT Benefits

Significantly less time to get a contract under NTP

Labor-hours normalized and outliers eliminated

Consultant contract amounts become predictable

PEPS employees optimized and process improved

Texas Department of Transportation

How Consultants Benefit

Significantly less time to get a contract under NTP

Negotiations without regard to consultant salaries
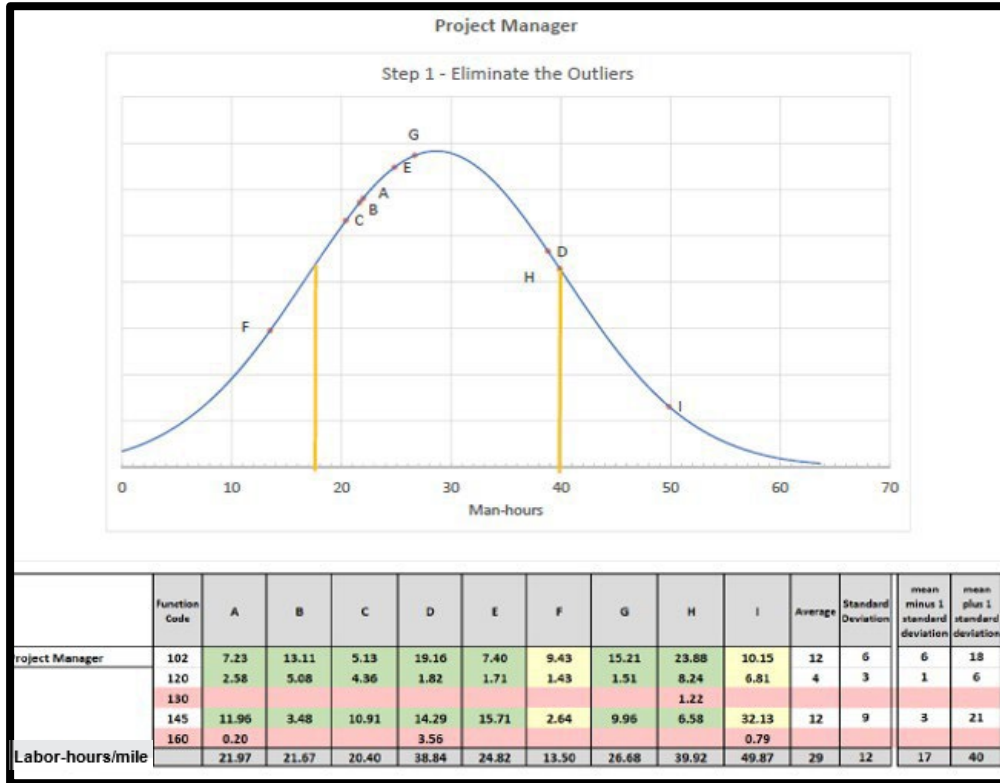
Consistency among TxDOT project managers

Negotiations without regard to construction cost

TxDOT Labor-Hours Original Data Set

REGION: **West Texas**

FUNCTIONAL CLASS: **Rural Arterial**

TYPE OF WORK: **Environmental & Schematic**

DESIGN CRITERIA: **4R New Location & Reconstruction**

SCALE: **Over 30 Miles**

DISTRICTS: **Odessa, Abilene, & Lubbock**

Project Manager – Step 1

Total Data

	Function Code	A	B	C	D	E	F	G	H	I	Average	Standard Deviation	mean minus 1 standard deviation	mean plus 1 standard deviation
Project Manager	102	7.23	13.11	5.13	19.16	7.40	9.43	15.21	23.88	10.15	12	6	6	18
	120	2.58	5.08	4.36	1.82	1.71	1.43	1.51	8.24	6.81	4	3	1	6
	130								1.22					
	145	11.96	3.48	10.91	14.29	15.71	2.64	9.96	6.58	32.13	12	9	3	21
	160	0.20			3.56					0.79				
Labor-hours/mile		21.97	21.67	20.40	38.84	24.82	13.50	26.68	39.92	49.87	29	12	17	40

Within one standard deviation

Outlier

Insufficient data

Project Manager – Step 2

Step 2 -Wide Range Projects

Labor-Hours
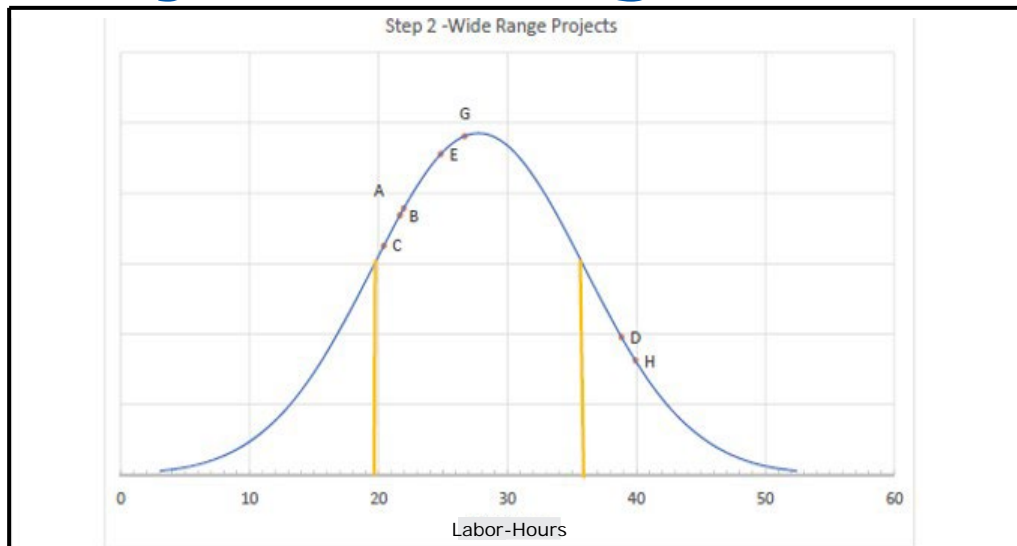
	Function Code	A	B	C	D	E	G	H	Average	Standard Deviation	mean minus 1 standard deviation	mean plus 1 standard deviation
Project Manager	102	7.23	13.11	5.13	19.16	7.40	15.21	23.88	13	7	6	20
	120	2.58	5.08	4.36	1.82	1.71	1.51	8.24	4	2	1	6
	130							1.22				
	145	11.96	3.48	10.91	14.29	15.71	9.96	6.58	10	4	6	15
	160	0.20			3.56							
Labor-hours/mile		21.97	21.67	20.40	38.84	24.82	26.68	39.92	28	8	20	36

Eliminate the Outliers

Within one standard deviation

Outlier

Insufficient data

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TxDOT Labor-Hours / Mile for Job Titles

Roadway		
Project Manager	Average 28	Range 20 to 36
Deputy PM	Average 26	Range 21 to 32
Senior Engineer	Average 24	Range 18 to 31
Engineer	Average 72	Range 51 to 93
Engineer-in-Training	Average 94	Range 81 to 106
Design Tech	Average 43	Range 11 to 74

Environmental		
Senior Environmentalist	Average 22	Range 17 to 27
Environmental Scientist	Average 61	Range 40 to 81
Public Involvement	Average 20	Range 16 to 24

Survey and Database		
Survey Manager	Average 13	Range 8 to 18
Survey Technician	Average 26	Range 10 to 41
LIDAR Technician	Average 65	Range 48 to 83
Ortho Specialist	Average 12	Range 10 to 15

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TxDOT CONNECT / PS-CAMS

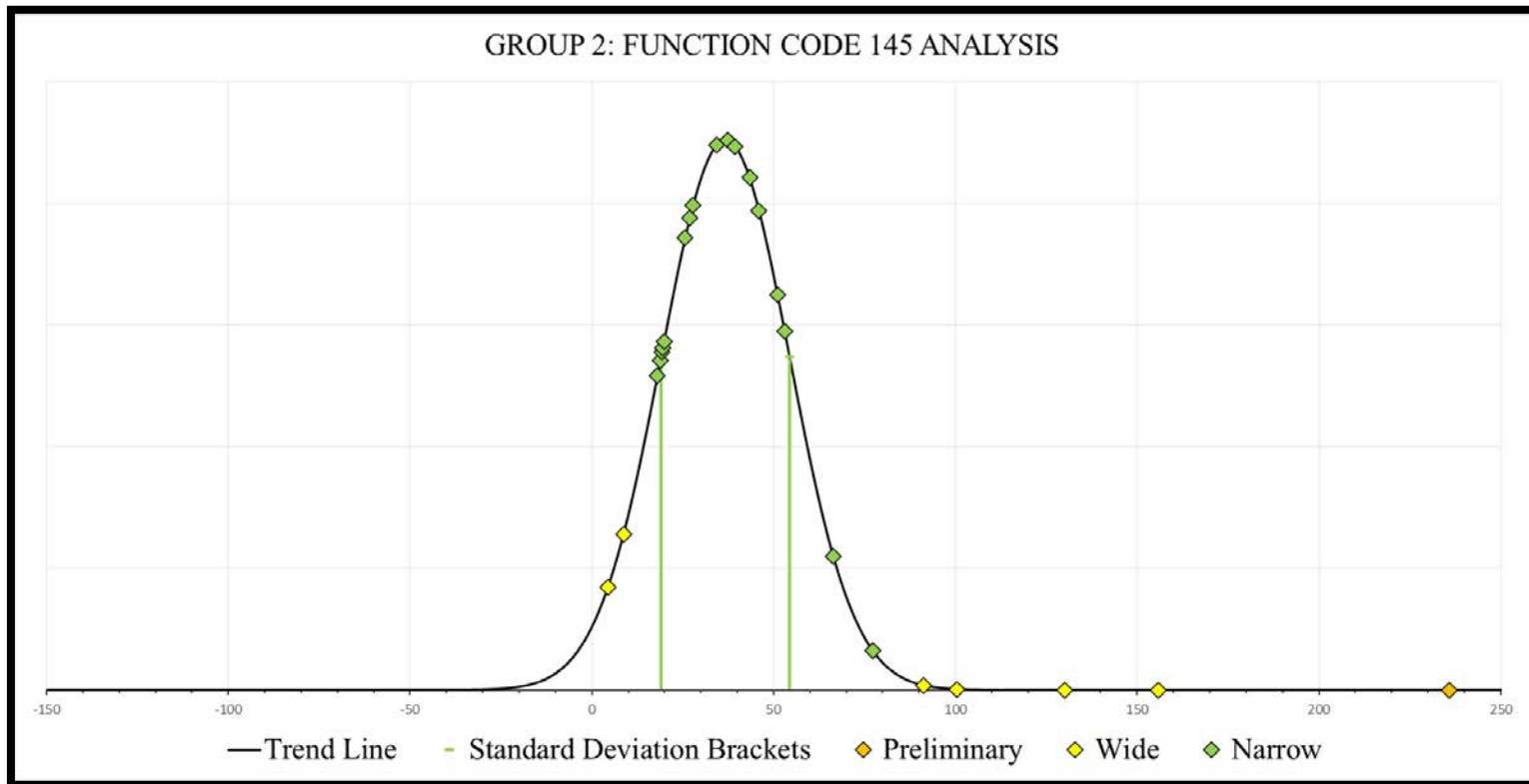Contract Type - PS&E
Project Type - Preventative Maintenance
Functional Classification
Design Criteria
Construction Cost Per Mile

Group 1	FM / RM	PM / 2R
Group 2	SH / US	PM / 2R
Group 3	Interstate	PM
Group 4	FM / RM	3R
Group 5	SH / US	3R

Group 2: Function Code 145 Analysis

GROUP 2: FUNCTION CODE 145 ANALYSIS

—Trend Line - Standard Deviation Brackets ◆ Preliminary ◆ Wide ◆ Narrow

Function Code 145 & 160 Summary all 5 Groups – 100 Projects

Group	Functional Class	Design Criteria	Number of Projects		Function Code 145 - Project Management	Function Code 160 - Roadway
1	FM	PM / 2R	25	Average	26.44	124.65
				Std Dev	6.65	47.72
					Narrow	Wide
2	SH	PM / 2R	26	Average	36.72	105.57
				Std Dev	17.65	46.61
					Narrow	Narrow
3	Interstate	PM	24	Average	23.83	85.69
				Std Dev	11.32	41.11
					Narrow	Narrow
4	FM	3R	23	Average	42.65	174.21
				Std Dev	28.35	69.38
					Narrow	Narrow
5	SH	3R	17	Average	49.24	183.84
				Std Dev	25.20	64.07
					Narrow	Narrow

Group 2: Function Code 145 – Labor Classification Analysis

GROUP 2: FUNCTION CODE 145 - PROJECT MANAGER
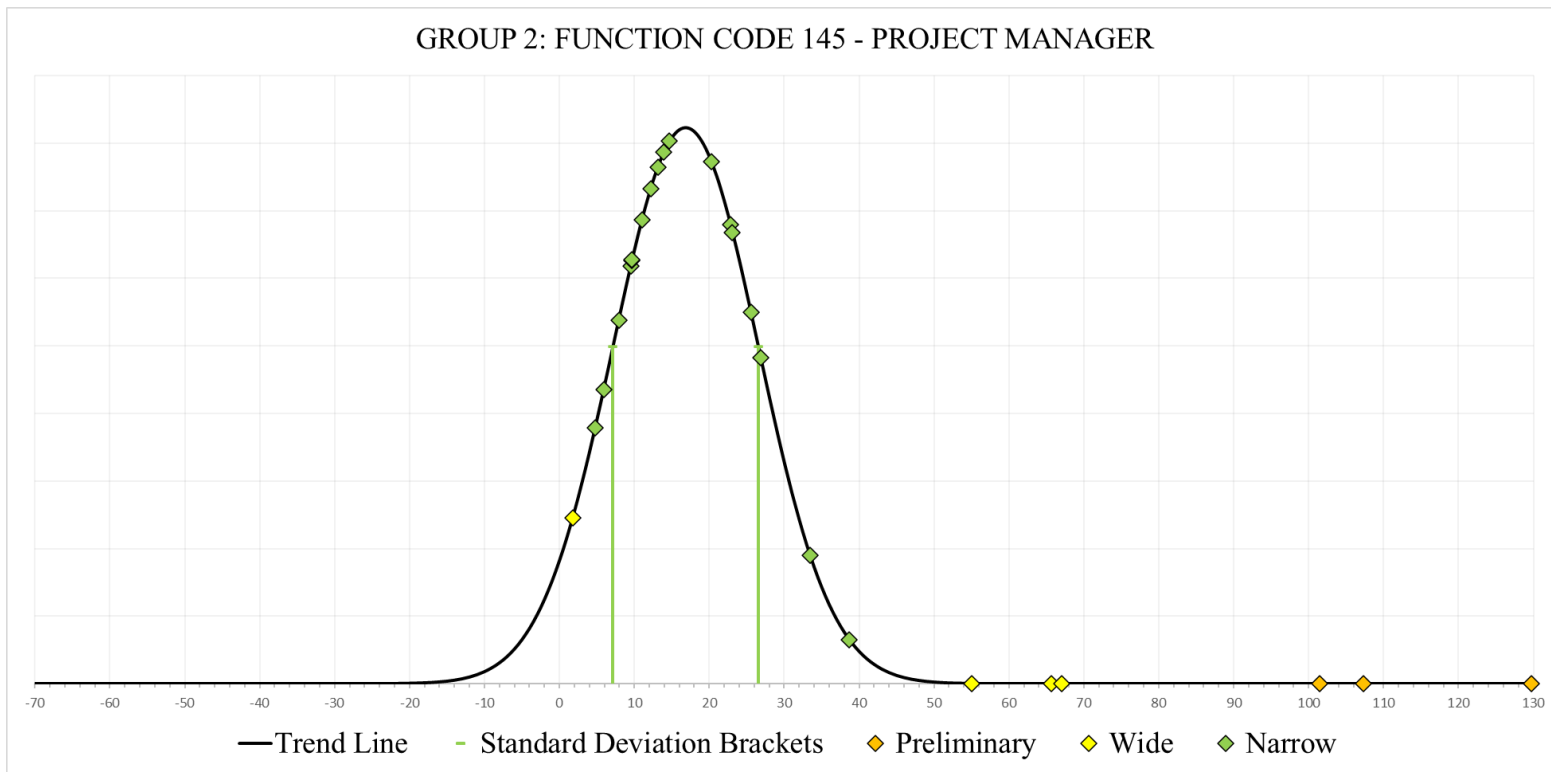
Job Title Summary Function Code 145

Group	Functional Class	Design Criteria	Project Manager / Mile	Engineer (Project) / Mile	Engineer-In-Training / Mile
1	FM	PM / 2R	20.67	4.61	6.18
2	SH	PM / 2R	16.85	11.60	2.85
3	Interstate	PM	9.79	5.55	7.47
4	FM	3R	16.77	7.67	7.32
5	SH	3R	21.98	9.54	4.63

Group 1 – Labor Hour Summary

Group 1 - 5 Summary

Group-Summary	Functional Class-Summary	Design Criteria-Summary	Number of Projects-Summary		102 - Route	120 - ENV	145 - Project Management	160 - Roadway	161 - Drainage	162 - Signing and Marking	163 - Misc
1	FM	PM/2R	42	Average-Summary	18.60	3.29	27.49	125.38	89.07	47.38	108.36
				Std Dev-Summary	7.24	1.26	6.63	42.14	49.53	20.88	50.67
2	SH	PM/2R	39	Average-Summary	30.00	6.52	40.24	101.84	60.48	51.73	108.26
				Std Dev-Summary	16.05	7.35	20.91	33.68	16.87	21.19	44.32
3	Interstate	PM	26	Average-Summary	19.37	1.05	26.63	112.52	28.98	37.25	53.47
				Std Dev-Summary	8.96	0.52	16.61	130.58	13.33	18.74	30.15
4	FM	3R	55	Average-Summary	25.54	4.18	46.79	227.58	188.11	49.43	137.57
				Std Dev-Summary	20.18	3.08	31.30	88.84	114.44	23.49	58.15
5	SH	3R	33	Average-Summary	22.24	5.94	38.08	195.32	49.37	44.05	107.21
				Std Dev-Summary	14.26	5.15	19.01	100.05	31.74	29.24	60.30

Function Code-Summary

Legend: Narrow / Wide

Group-Summary: (All)

Function Code-Summary: (All)

Labor-Hours by Job Title

Function Code-Summary	Group-Summary	Functional Class-Sum...	Design Criteria-Su...	Function Code Number of Projects	Avg. Project Manager / Mile	Avg. Engineer (Senior) / Mile	Avg. Engineer (Design) / Mile	Avg. Engineer (Project) / Mile	Avg. Engineer-In-Training / Mile	Avg. Engineering Tech / Mile	Avg. CADD / Mile	Avg. Admin / Mile	Avg. Support MGR / Mile	Avg. Average Hours / Mile	Avg. Average Job Title
102 - Route	1	FM	PM/2R	21	3.69	2.14	1.94	6.92	5.57	1.03	0.74	0.26	0.38	18.60	22.68
	2	SH	PM/2R	24	4.00	4.36	3.42	6.16	7.17	2.90	1.27	0.15	0.36	30.00	29.79
	3	Interstate	PM	17	3.84	2.94	3.81	2.34	3.83	1.27	0.26	0.17	0.01	19.37	18.48
	4	FM	3R	43	3.51	2.97	2.32	5.23	7.12	2.40	0.24	0.63	0.23	25.54	24.65
	5	SH	3R	25	4.48	4.86	2.82	6.94	7.95	1.14	0.54	0.58	0.47	22.24	29.78
120 - ENV	1	FM	PM/2R	19	0.54	0.39	0.20	0.74	0.76	0.31	0.32	0.00	0.03	3.29	3.29
	2	SH	PM/2R	26	1.32	1.23	0.10	1.30	0.97	0.83	0.48	0.00	0.29	6.52	6.52
	3	Interstate	PM	11	0.24	0.02	0.06	0.27	0.22	0.00	0.12	0.00	0.12	1.05	1.05
	4	FM	3R	28	0.55	0.64	0.39	0.80	0.55	0.76	0.28	0.04	0.14	4.18	4.15
	5	SH	3R	19	1.39	0.86	0.40	0.74	2.29	1.07	1.03	0.11	0.22	5.94	8.11
145 - Project Management	1	FM	PM/2R	24	13.11	5.75	0.67	2.72	1.19	0.30	0.08	5.23	2.26	27.49	31.32
	2	SH	PM/2R	24	16.15	5.16	2.35	6.02	0.82	0.09	0.74	5.37	1.44	40.24	38.14
	3	Interstate	PM	17	9.53	3.40	1.22	4.06	2.68	0.07	0.39	3.22	1.23	26.63	25.80
	4	FM	3R	40	19.11	6.60	1.79	6.80	2.50	0.22	0.39	5.77	2.80	46.79	45.98
	5	SH	3R	17	23.42	7.62	1.21	10.76	1.18	0.23	0.18	7.41	1.72	38.08	53.73
160 - Roadway	1	FM	PM/2R	25	7.79	6.27	13.39	20.04	40.18	30.78	20.48	0.37	1.86	125.38	141.17
	2	SH	PM/2R	21	4.62	7.40	12.31	13.65	34.02	14.04	9.66	0.32	2.38	101.84	98.40
	3	Interstate	PM	23	6.06	6.10	7.06	16.22	36.15	7.06	32.45	0.12	1.05	112.52	112.27
	4	FM	3R	32	7.05	10.48	27.38	21.32	65.78	47.43	45.35	0.06	2.72	227.58	227.57
	5	SH	3R	19	7.15	14.05	46.75	27.22	77.52	30.64	52.49	1.57	3.51	195.32	260.90
161 - Drainage	1	FM	PM/2R	22	2.44	8.22	11.85	10.91	38.41	19.49	5.36	0.29	1.99	89.07	98.96
	2	SH	PM/2R	6	2.53	9.36	1.38	10.38	21.84	4.46	6.33	0.00	4.19	60.48	60.47
	3	Interstate	PM	10	0.94	4.42	1.76	6.04	8.00	2.04	5.21	0.01	0.28	28.98	28.70

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Summary

Function Code	1 Project Manager / Mile	2 Engineer (Senior) / Mile	3 Engineer (Design) / Mile	4 Engineer (Project) / Mile	5 Engineer-In-Training / Mile	6 Engineering Tech / Mile	7 CADD / Mile	8 Admin / Mile	9 Support MGR / Mile	Other Job Titles	TOTAL
102	48.00	34.00	0.00	32.00	32.00	12.00	8.00	4.00	2.00	8.00	180.00
120	4.00	4.00	0.00	4.00	2.00	2.00	1.00	1.00	0.00	0.00	18.00
145	90.00	40.00	0.00	30.00	0.00	0.00	0.00	12.00	0.00	8.00	180.00
160	36.00	24.00	0.00	110.00	120.00	110.00	60.00	8.00	0.00	32.00	500.00
161	24.00	18.00	0.00	60.00	100.00	32.00	32.00	2.00	2.00	0.00	270.00
162	16.00	28.00	0.00	40.00	100.00	40.00	60.00	12.00	4.00	0.00	300.00
163	40.00	40.00	0.00	80.00	120.00	60.00	32.00	8.00	8.00	37.00	425.00
Total	258.00	188.00	0.00	356.00	474.00	256.00	193.00	47.00	16.00	85.00	1873.00

Contract Cost

Function Code	1 Project Manager / Mile	2 Engineer (Senior) / Mile	3 Engineer (Design) / Mile	4 Engineer (Project) / Mile	5 Engineer-In-Training / Mile	6 Engineering Tech / Mile	7 CADD / Mile	8 Admin / Mile	9 Support MGR / Mile	Other Job Titles	TOTAL
102	48.00	34.00	0.00	32.00	32.00	12.00	8.00	4.00	2.00	8.00	180.00
120	4.00	4.00	0.00	4.00	2.00	2.00	1.00	1.00	0.00	0.00	18.00
145	90.00	40.00	0.00	30.00	0.00	0.00	0.00	12.00	0.00	8.00	180.00
160	36.00	24.00	0.00	110.00	120.00	110.00	60.00	8.00	0.00	32.00	500.00
161	24.00	18.00	0.00	60.00	100.00	32.00	32.00	2.00	2.00	0.00	270.00
162	16.00	28.00	0.00	40.00	100.00	40.00	60.00	12.00	4.00	0.00	300.00
163	40.00	40.00	0.00	80.00	120.00	60.00	32.00	8.00	8.00	37.00	425.00
Total Hours	258.00	188.00	0.00	356.00	474.00	256.00	193.00	47.00	16.00	85.00	1873.00
Contract Cost	$66,409.20	$41,939.04	$ -	$61,089.60	$48,803.04	$25,625.60	$18,767.32	$4,032.60	$3,477.76	$12,155.00	$282,299.16

ACEC support on the LOE Labor Hour Tool

★ John Lamb, Lamb-Star

★ Dawn Green, KCI

★ Doug Dillon, BGE

★ Don Green, RS&H

★ Todd Thurber, LJA

★ Lee Ann Dixon, Walter P. Moore

★ Kelly Kaatz, HDR

★ Dave Lubitz, Aguirre & Fields

★ John Hamilton, Parkhill

★ Travis Isaacson, The Rios Group

ACEC Meeting Notes

ACEC LOE Labor Hour Tool December Meeting

███████████ In previous discussions, there was question about using hours in a particular contract and if hours hit a max in contract, TxDOT didn't have the ability to track those hours. So, there is question about these additional hours and how they are tracked. If you are using data from those contracts to assign and generate labor hour efforts for activities and if the majority of contracts use all the hours in the contract, then the concern is that there is additional effort that was required that doesn't show up in data. So, it would understate labor hours required for activity. So, not capturing the true cost.

███████████ Benefit in time of supply chain trouble and inflation. Salaries for the consultant and materials for TxDOT. If this expedites the process, then we save tax-payer money. When looking at cost of project, it may have gone up 2 million then consultant fee increases by 55,000, then it's up a million or two in construction cost. Expediting is a benefit for all parties involved.

███████████ When looking at data, the tool is intended to be used statewide. Will we take a look at differences between districts? Even though a project scope may be same, the effort needed may be different. Will we break it down by district to normalize these differences? Level of effort comes down to scope and what's required by one district may vary between the other.

███████████ One concern is to make sure it works for smaller firms. So, small firms may only have one EIT or one in each category, or even a lot of EIT's and one senior manager. This can be a challenge when looking at it by category. ███████ likes that we are trying to come up with accurate hours for projects versus salaries. There is still concern that we run into with districts who are trying to come under a million to avoid a longer review period. Districts are asking to come down x amount of money to shorten review process, this in turn removes a lot of effort on consultant side. Consultants want to see tool help get to end result faster instead of overthinking the process. Want tool to be helpful but not restrictive in that it limits the consultant. Would like it to be one aspect of negation and not the most important aspect when coming to an agreement in scope and fee.

TxDOT addresses Industry Concerns with Labor Hour LOE Tool

"The LOE Tool will be used for all types of TxDOT Projects"

- We are loading data for low-risk Preventative Maintenance projects, the model will not be complete for six months, then needs reviewing, testing, tweaking, and testing some more – we are very, very early in the process.

"The LOE Tool has already been developed without consultant input and is being sold to us."

- Phase 1   Abilene   9 E&S
- Phase 2   Abilene, PEPS   100 PSE (Groups 1-5)
- Phase 3   Abilene, PEPS, BARS, ACEC   200 PSE (Groups 1-5)

TxDOT Labor-Hours Concerns

The Labor-Hour data must be correct / accurate for the proposed project.

- In the case of the 9 x $9M West Texas Environmental and Schematic corridors, we had a near perfect sample to examine.
- Imperative that TxDOT only use historical data from successful contracts on highly similar projects.

The Labor-Hour data must be applied accurately to each project.

- Each project has unique unknowns and risk involved for each job title.
- A contract will often be higher than the average number of labor-hours per mile due to the various complexity of a project.

TxDOT Labor-Hours Concerns

No two projects are the same

- The purpose of this tool is to get TxDOT and consultants closer to a contract that is fair and equitable for both sides.
- The tool does not replace engineering judgement or common sense in negotiations.

What if we use subconsultants for some services in the contract?

- Labor-hours can be reviewed by the Function Code instead of by the entire Job Title.
- The Prime can add the sub-consultant's hours to the Prime's Job Title for those services or that Function Code can be reviewed separately.

Texas Department of Transportation

In FY 2023 with the help of TPP – PEPS hired Data Analysts to collect data
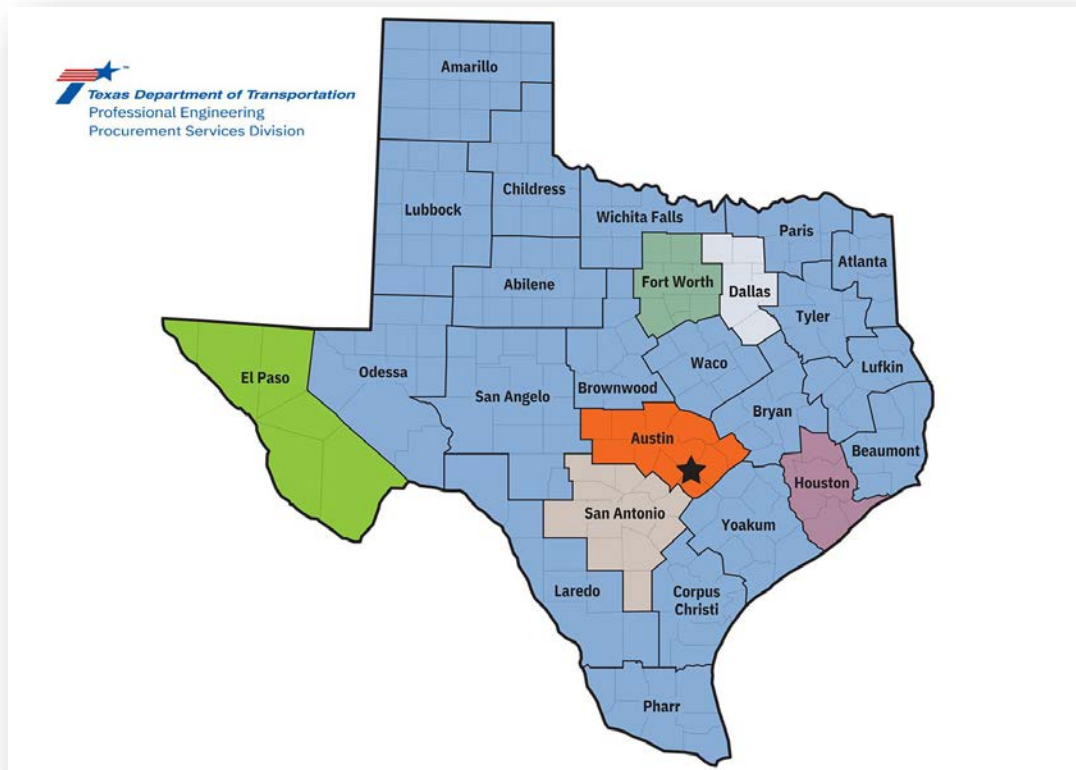
AJAR – Groups 6-13

Group 6	Road and shoulder widening	25 CSJs
Group 7	Super 2 passing lanes	29 CSJs
Group 8	Off system bridges under $500k construction	47 CSJs
Group 9	Off system bridges $500k - $1.5M construction	38 CSJs
Group 10	On system bridges FM/RM roads under $2M construction	20 CSJs
Group 11	On system bridges FM/RM roads $2M - $4M construction	18 CSJs
Group 12	On system bridges US/SH roads under $4M construction	20 CSJs
Group 13	On system bridges US/SH roads $4M - $8M construction	18 CSJs

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2) *Fair and Equitable Practices*

3) *Transparency and Trust*

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New Benefits

Faster negotiations to address Project Acceleration and "Rack and Stack"

Helps Consultant and TxDOT focus on clearly defined scopes in each Function Code

Trust between the Department and the Consultant Industry

Create continuous improvement with each negotiation reinforcing future ones.

Cliff Hallford, PMP

PEPS Portfolio Project Manager

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